Backing Up MS SQL Databases with Handy Backup

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I.   Introduction

Capability of all Handy Backup software business editions to back up MS SQL Server databases is a principal feature. "Hot" backup technology enables to backup database without stopping an engine. Reserve copies of MS SQL database can be created by any edition of Handy Backup if it contains *the MS SQL plug-in.* This plug-in is dedicated to fully automating any processes of saving and restoring MS SQL data. Any backup or restore task can be scheduled, as well as contain many other useful options. Moreover, Handy Backup is able to run as a Windows service, to expand performance ratings and to not annoy users.

This technical guide provides all the necessary instructions for creating and restoring MS SQL data. It effectively protects the information stored in your MS SQL databases.

II.   Main features of Handy Backup MS SQL plug-in

Assignment

- "Hot" MS SQL database backup;
- "Cold" backup in case of inability to perform "hot" backup;
- Restoring databases from saved copies back or expanding these databases to other places.

Advantages

- The ability to back up without interrupting a database (a "hot" backup).
- The possibility to back up or restore any single database instead of an entire instance.
- Availability of using backup data along with different third-party software.

Backing up of remote MS SQL databases

To back up a SQL database on a remote computer you should firstly install the remote client for Handy Backup network operations (**Network Agent**). Detailed instructions for use of Handy Backup for backing up remote MS SQL databases are beyond the scope of this manual. If you want to get these instructions you can send request on sales@handybackup.net.

Plug-in File System

The file system provided by the plug-in is organized as follows:
- **Folders** correspond to SQL Servers and carry the respective names. Folders cannot have attributes.
- **Files** correspond to databases available on the selected SQL Server, and carry the respective names. Files also have no attributes.

Since the plug-in's files and folders have no attributes, during comparison with files that are already backed up, they will be always considered as different. This means that incremental backup (backing up of new and changed files) won't work: for effective versioning, use differential backup.

Supported versions of MS SQL

The plug-in was developed for any version of MS SQL including versions 2005, 2008, 2008R2 and 2012. It is based on MSSQL VSS Writer, supporting presumably from MS SQL 2005. Please feel free to write on *support@handybackup.net* for advice on selection and use of alternatives.

Note that for 32-bit or 64-bit versions of Windows Server, you need to use an appropriate (32-bit or 64-bit) version of Handy Backup, respectively.

Access rights

To use the *MSSQL* plug-in, a user running Handy Backup must have enough privileges to make API calls for *SQL Writer Service* and *Volume Shadow Copy Service*.
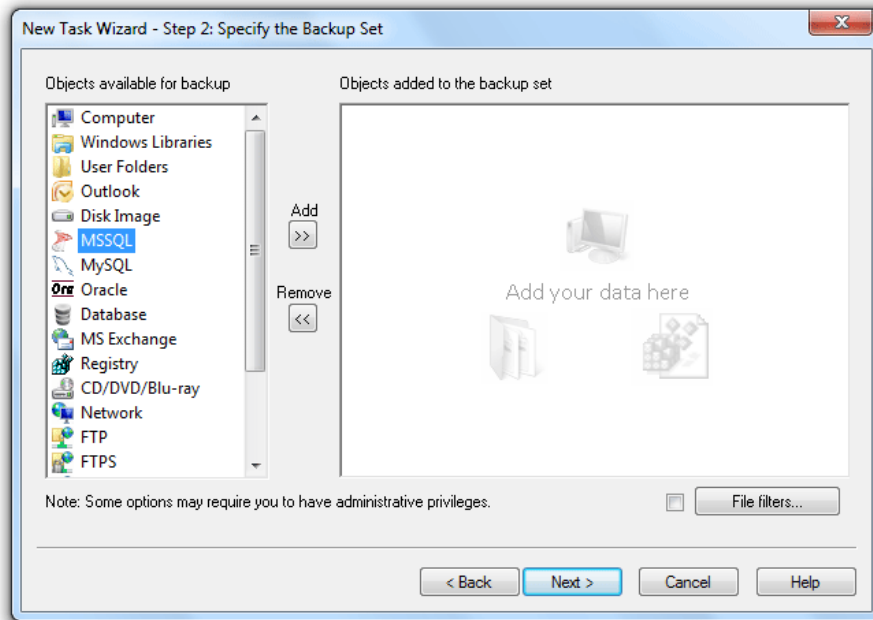
Format of Backup Files

As a result of backup, the plug-in creates a set of compressed (ZIP) files named after appropriate databases. Each file is basically a ZIP archive with all data files and transaction logs of the respective database.
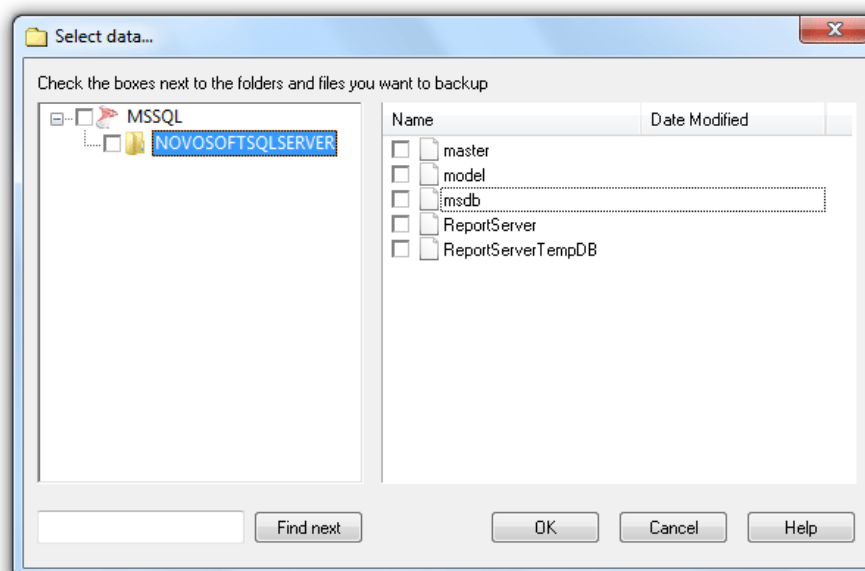
III.   Backup and Restore

Backing Up MS SQL Databases

In backup tasks, the **MSSQL** plug-in can only be used as data source.

To add the particular SQL database or an entire instance to the list of data backed up, please follow these steps:

1.   In the **Data Sources** table, select **MSSQL** and click **Add**. The **Select data...** dialog opens.


2.   Check one or some boxes just next to file names (i.e. databases) you want to back up.
3.   When you complete the selection, click **OK**. Selected data appears in the **Backup Set** table of the New Task Wizard.

Restoring

The process of restoration of MS SQL database or instance is organized as a call for **SQL Writer Service,** identifying paths to all the respective files. If these new paths are not doubling paths specified in backup files, then the restoration process will be performed using some new paths. So you can restore databases to a different place if you needed it (e.g. for replication assistance).
To set up the restoration, use the sequence described here.
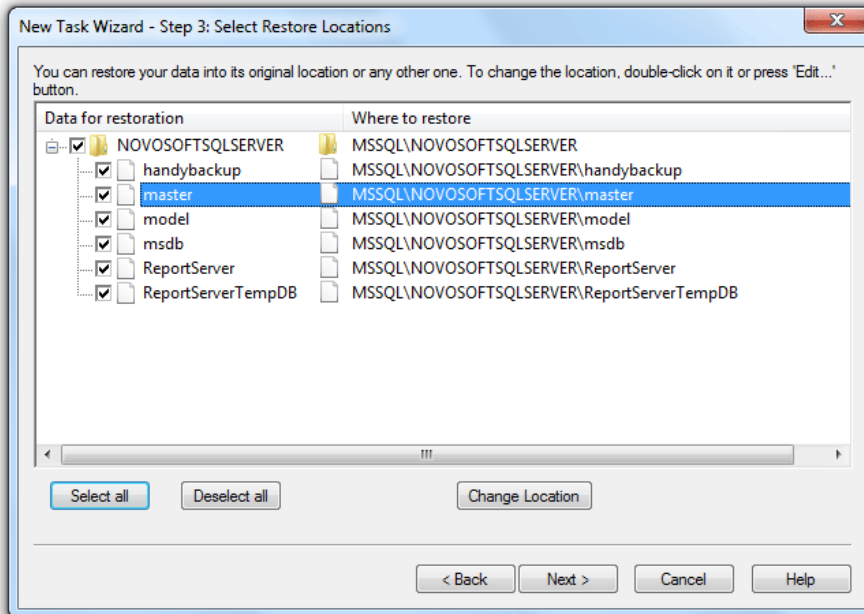
1. Click a **New Task Wizard** menu item or button.
2. Select **Restore task**, and then click **Next**.
3. Browse for the index file (**backup.hbi**) located in the destination folder. Select it and click **Next**.
4. In the **Select Restore Locations** dialog, verify the details of restoration.

If you want to restore a database to a different place, follow these steps:

4.1. In the **Select Restore Locations** dialog, select a database (file of the **MSSQL** plug-in file system), and then click **Change Location**. The **Change restore location** dialog opens.
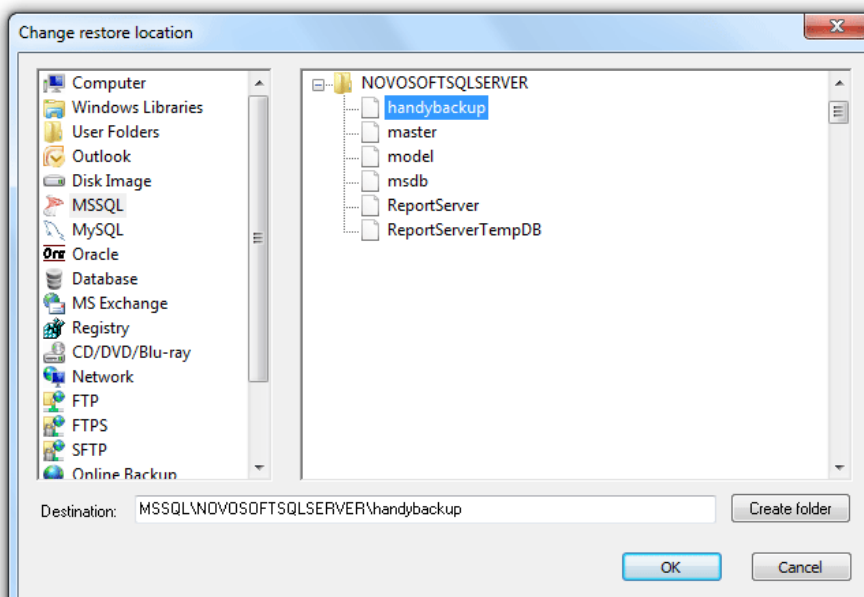
4.2. Select a new path for the database, and then click **OK**.

After verifying paths of restoration, you need to select type of restoration, enter decryption password (optional), and name the task. These steps are not specific to the **MySQL** plug-in.

When you run the restoration, the plug-in firstly stops the respective SQL instance and all Windows services that depend on it. Then it copies the files to their original locations, and re-launches the services.

IV.   Technologies beyond the MS SQL Plug-In

As mentioned before, MS SQL plug-in for Handy Backup is based on two principal technologies called **SQL Writer Service** and **Volume Shadow Copy Service.** Both services are provided by Microsoft, the first as a part of MS SQL Server since the version 2005, and the second as a part of common Windows technological solution package.

SQL Writer Service

This technology is native to Microsoft SQL Server since the version 2005. The power of SQL Writer service provides possibilities for backing up and restoring MS SQL databases using the technique of volume shadow copying.

SQL Writer service installs automatically. It is an addition to the Volume Shadow Copy service discussed next, and can be called by that service any time the shadow copying touches the matter of SQL data.

Volume Shadow Copy Service (VSS)

This service is available as a part of any modern Windows edition. The technology of shadow copying, be it applied to SQL, allows creating a "hot" copy of SQL instances without stopping the server.

VSS uses the physical-level copying process called "block level" for accessing data. Instead of following the logical structure of files and folders, Volume Shadow Copy service moves entire blocks of data, used as a primary mean of placing the information by file system.

V.   Overview of MS SQL Backup Tool

Handy Backup can compete with both native and third-side software instruments for backing up MS SQL data. For the convenience, we are placing here a short review of most popular tools capable to serve as MS SQL database safekeeping methods.

Native Tools

Microsoft places the BACKUP command instead of an obsolete DUMP command in the command language of all modern versions of MS SQL software.

The power of this command is significant; it allows full or partial (differential) backup of a database or an entire instance (BACKUP DATABASE), as well as moving to safety a copy of transaction log (BACKUP LOG). Data can be moved to a specified backup device, mirrored or placed in offsite storage arrays of the cloud service called Windows Azure. The last option is available from the MS SQL 2012 SP1 version, completed with CU2 renewal.

This tool comes up with a set of utilities included in the MS SQL package out-of-the-box. So it is as free (or cost as much) as the entire edition of MS SQL used.

Flaws of this tool are:

- Inability to backup anything except MS SQL databases in a single task;
- Incapability to save or restore particular tables instead of whole database content;
- Lack of GUI;
- Lasting possibilities to use a wide spectrum of storage devices for data.

It is possible to use scripts for backing up MS SQL data. Many such scripts are widely available throughout the Internet. Some users prefer scripts for other methods due to versatility and, sometimes, compatibility of this method.

Using scripts is somewhat difficult and potentially dangerous, however. No one can guarantee stability and reliability of the script, as well as its compatibility. The technique of using scripts requires some knowledge and skill in administering databases. It is always much better to trust professionals in such a difficult and intricate task!

You can read more about SQL backup scripts using this link.

External (Third-Party) Tools

These are some external software utilities able to backup and restore MS SQL data on the market. Solutions can be developed in two forms:

- Scripts using native MS SQL or Windows tools for backing up data;
- Plug-ins (modules) allowing software backing up MS SQL data along with other data. Novosoft Handy Backup belongs to this, more advanced and versatile type.

If you want to compare Handy Backup with one or more other solutions for MS SQL backup, let you send us a letter on sales@handybackup.net and we will glad to say you perfect answers for all your questions about.

VI. Frequently Asked Questions (FAQs)

Q: Where I can enter my SQL password when I want to back up my database?
A: A user running a copy of Handy Backup (hbagent.exe) must have a role **sysadmin** in a structure of MS SQL Server. Also the server must be tuned to authorizing in a mixed mode, as the MS SQL plug-in requires Windows authentication (Windows Authentication Mode).

Q: The program creates a copy of data, but in the log, strings 14 and 15 contain errors. What is this and how is it serious?
A: Errors like that repeats after every copying of database, if (possible) the device used for temporary files hasn't sufficient space. Almost assured that after this situation emerges, backing up can't be complete correctly.
Here is what the MSDN recommends in this situation:
Check the log if the situation appears after the place for temporary files was depleted or some permits were not granted. Also check the place of MDF and NDF files of this particular database and be sure that the account used for backup operations with Database Engine component has rights to access these files. After correcting all the problems, restart the database by setting up the ONLINE parameter in ALTER DATABASE.

Q: Is it necessary to stop the MS SQL server service before backing up?
A: No.

Q: Is it necessary to log off all active users before backing up?
A: No, when you plan to backup. For the restoration, you must log off all active users just before the operation.

Q: How I can restore a particular copy instead of last backup copy created?
A: It depends on backup type completely. After the full backup, you can restore the last copy of data only.
You can also back up with timestamps. After the backup operations, all data will be moved to a particular time-stamped directory. To restore a desired copy, you must use an index file located in that directory.

Also, you can use the differential backup for both saving the space used for data keeping and for creating some copies of data that you can restore to just the needed level. Restoration of a particular data performs by same method as the restoration of a time-stamped directory. It is to be mentioned that you must have a full version of restored data before you can attempt to restore a differential data set.

Conclusion

As a backup tool for MS SQL data, Handy Backup is an effective and profitable solution. The opportunity to use the program without stopping the database allows applying this method of backup for data protection in the various IT-infrastructures.

About Handy Backup

Handy Backup is a product line for backup created by Novosoft. The software allows backing up, restoring and synchronizing of different types of data including Oracle, Lotus, MS SQL, MySQL and PostgreSQL databases, website contents, office data such as Microsoft Office documents, Exchange and Outlook data, E-mails, photos and graphs, as well as entire disk images and system files. Wide functionality has allowed Handy Backup to gain popularity on the global market of IT products as a convenient solution for home usage and corporate environment.

About Novosoft

The company was founded in 1992 and provides a wide range of services for various industries in the field of IT including data-guarding solutions for home, office and business processes automation. Solutions developed by the company's specialists are based on the advanced technologies certified by Oracle, Microsoft, Intel and some other key companies in an area of IT industry. These technologies deeply incorporated into program solutions allow Novosoft's products to maintain leading positions on the domestic and international markets.

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